

What is claimed is:

1) A semi-crystalline, largely isotropic, porous coal-based product
produced from particulate coal of a small diameter, having a density
of between about 0.1 and about 0.8 g/cm^3 and a thermal conductivity
below about $1 \text{ W/m}^{\circ}\text{K}$.

5 2) The porous coal-based product of claim 1 having a compressive
strength below about 6000 psi.

10 3) The porous coal-based product of claim 1 that has been carbonized.

4) The porous coal-based product of claim 1 that has been graphitized.

15 5) A method for producing a porous coal-based product from coal
comprising:

A) comminuting coal to a small particle size to form a
ground coal;

B) placing said ground coal in a mold;

C) heating said ground coal in said mold under a non-
oxidizing atmosphere to a temperature of between
 300°C and about 700°C
about 300°C and about 700°C and soaking at this
temperature for a period of from about 10 minutes to
about 12 hours to form a preform; and

D) controllably cooling said preform.

6) The method of claim 5 wherein said inert atmosphere is applied at a
pressure of from about 0 psi up to about ^{500 psi}
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7) The method of claim 5 wherein said temperature is achieved using a
heat-up rate of between about ^{10°C to about 20°C}
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8) The method of claim 5 wherein said controlled is accomplished at a
rate of less than about ^{10°C/min to a temperature of about 100°C}
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9) The laminated sheet product of claim 8 wherein said material is
selected from the group consisting of aluminum, steel, polymer sheet,
inconel, titanium, refractory metals, fiber reinforced polymer sheet
15 and paper.

10) The laminated sheet product of claim 8 wherein said sheet core has
been carbonized.

11) The laminated sheet product of claim 8 wherein said sheet core is
graphitized.